WHAT IS CLAIMED IS:

1. An apparatus, comprising:

an electrically conductive layer having a recess therein which includes a balun portion and a slot portion, said slot portion communicating at one end with said balun portion;

a dielectric layer disposed adjacent one side of said conductive layer, said dielectric layer having an opening therethrough in the region of a further end of said slot portion remote from said one end thereof; and

an elongate conductive element which extends generally transversely with respect to said slot portion in the region of said one end thereof.

2. An apparatus according to Claim 1, wherein said opening increases substantially progressively in width in a direction away from said one end of said slot portion.

3. An apparatus according to Claim 2, wherein said opening is disposed along a centerline of said slot portion and is positioned so that at least a portion of said opening is on a side of said further end of said slot portion nearest said one end thereof, said portion of said opening being spaced from edges of said slot portion.

4. An apparatus according to Claim 2, wherein said opening is disposed along a centerline of said slot portion and is positioned beyond said further end of said slot portion.

5. An apparatus, comprising:

an electrically conductive plate having a balun hole and a slot extending transversely therethrough, said slot opening at one end into said balun hole; and

an elongate conductive element which extends generally transversely with respect to said slot in the region of said one end of said slot.

6. An apparatus according to Claim 5, wherein said plate is made of a metal.

7. An apparatus according to Claim 5, wherein said conductive element has first and second ends, said conductive element being electrically coupled to said plate at said second end thereof, and being free of electrical contact with said plate from said first end thereof to a section thereof adjacent said second end thereof, said section of said conductive element being the portion thereof which extends generally transversely of said slot in the region of said one end of said slot.

8. An apparatus according to Claim 7,

including a dielectric sheath provided around said conductive element from said first end thereof past said section thereof; and

including an electrically conductive shield provided around said sheath from said first end of said conductive element to a location adjacent said section thereof, said sheath being free of said shield in the region of said section of said conductive element, and said shield being electrically coupled to said plate.

9. An apparatus according to Claim 8,

wherein said sheath extends to said second end of said conductive element;

including a further shield which is provided around said sheath at said second end of said conductive element and which is electrically coupled to said plate; and

including structure which electrically couples said second end of said conductive element to said further shield.

10. An apparatus according to Claim 9, wherein said structure includes said conductive element increasing in cross-sectional dimension from said section thereof toward said second end thereof so that said second end thereof extends outwardly through said sheath and electrically contacts said further shield.

11. An apparatus according to Claim 9, wherein said structure includes a via extending between opposite sides of said further shield through said second end of said conductive element.

12. An apparatus according to Claim 5, wherein said slot has edges on opposite sides thereof which each follow a predetermined curve other than a first-order exponential curve.

13. An apparatus according to Claim 12, wherein said predetermined curve for each said edge is configured to facilitate minimization of return loss for electromagnetic signals induced within said slot portion through said elongate conductive element.

14. An apparatus according to Claim 5, wherein said slot has a further end remote from said one end thereof; and including a refracting layer extending approximately perpendicular to a centerline of said slot at a location beyond said further end of said slot, said refracting layer being made of a material which is transmissive to and effects refraction of electromagnetic signals in a selected frequency range that travel in one of two opposite directions along said slot.

15. An apparatus according to Claim 14, including a further layer which extends approximately perpendicular to said centerline of said slot and which is disposed adjacent said refracting layer on a side thereof remote from said slot, said further layer being made of a material which is transmissive to and effects refraction of the electromagnetic signals in said selected frequency range which are traveling in one of said two opposite directions along said slot.

16. An apparatus according to Claim 15, wherein said refracting and further layers are respective portions of a radome.

17. An apparatus, comprising:

a conductive section having a recess which includes a balun portion and a slot portion, said slot portion communicating at one end with said balun portion, and having a further end remote from said one end thereof;

an elongate conductive element which extends generally transversely with respect to said slot portion in the region of said one end thereof; and

a refracting layer extending approximately perpendicular to a centerline of said slot portion at a location beyond said further end of said slot portion, said refracting layer being made of a material which is transmissive to and effects refraction of electromagnetic signals in a selected frequency range that travel in one of two opposite directions along said slot.

18. An apparatus according to Claim 17, including a further layer which extends approximately perpendicular to said centerline of said slot portion and which is disposed adjacent said refracting layer on a side thereof remote from said slot portion, said further layer being made of a material which is transmissive to and effects refraction of the electromagnetic signals in said selected frequency range which are traveling in one of said two opposite directions along said slot.

19. An apparatus according to Claim 18, wherein said refracting and further layers are respective portions of a radome.

20. An apparatus according to Claim 18, wherein said layers have dielectric constants which are different.

21. A method comprising the steps of:

creating in an electrically conductive layer a recess therein which includes a balun portion and a slot portion, said slot portion communicating at one end with said balun portion;

forming a dielectric layer adjacent one side of said conductive layer, said dielectric layer having an opening therethrough in the region of a further end of said slot portion remote from said one end thereof; and

fabricating an elongate conductive element which extends generally transversely with respect to said slot portion in the region of said one end thereof.

22. A method according to Claim 21, wherein said forming step is carried out in a manner so that said opening increases substantially progressively in width in a direction away from said one end of said slot portion.

23. A method comprising the steps of:

creating in an electrically conductive plate a balun hole and a slot that extend transversely therethrough, said slot opening at one end into said balun hole; and

fabricating an elongate conductive element which extends generally transversely with respect to said slot in the region of said one end of said slot.

24. A method according to Claim 23, including the step of selecting a metal as the material from which said electrically conductive plate is made.

25. A method, comprising the steps of:

creating in a conductive section a recess which includes a balun portion and a slot portion, said slot portion communicating at one end with said balun portion, and having a further end remote from said one end thereof;

fabricating an elongate conductive element which extends generally transversely with respect to said slot portion in the region of said one end thereof; and

forming a refracting layer which extends approximately perpendicular to a centerline of said slot portion at a location beyond said further end of said slot portion, said refracting layer being made of a material which is transmissive to and effects refraction of electromagnetic signals in a selected frequency range that travel in one of two opposite directions along said slot.

26. A method according to Claim 25, including the step of forming a further layer which extends approximately perpendicular to said centerline of said slot portion and which is disposed adjacent said refracting layer on a side thereof remote from said slot portion, said further layer being made of a material which is transmissive to and effects refraction of the electromagnetic signals in said selected frequency range which are traveling in one of said two opposite directions along said slot.